

12.

Notes on Mexican Snakes of the Genus *Trimeresurus*.

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A review of the species of *Trimeresurus* now known from Mexico has revealed some confusion in the literature, to which I personally have contributed to some extent. In addition to correction of some of these errors, the present paper presents two forms new to the fauna of Mexico, names a population previously associated with *lansbergii*, and diagnoses in a key the eleven forms definitely known to occur in the country. It should be noted that *schlegelii*, treated by Terron (*Anal. Inst. Biol. Mex.*, vol. 1, 1930, pp. 196-7, fig. 7) as a member of the Mexican fauna (without locality), has never been reported nearer Mexico than the "Guatemala" record of Boulenger (*Cat. Snakes*, vol. 3, 1896, p. 567). Its existence in the country is problematical.

I am much indebted to Dr. E. R. Dunn, who has very generously checked the types of *brachystoma* and made a number of valuable additions to the paper. The study has been completed, and a portion of the material on which it is based has been collected, during tenure of a Walter Rathbone Bacon Traveling Scholarship.

Trimeresurus godmani (Günther).

Bothreischis godmani Günther, *Ann. Mag. Nat. Hist.*, ser. 3, vol. 12, 1863, pp. 364-365, pl. 6, fig. G (Totonicapam, Guatemala).

Bothrops godmani Martín del Campo, *Anal. Inst. Biol. Mex.*, vol. 9, 1938, p. 229, fig. 2.

One specimen from Santa Rosa, near Comitán, Chiapas, was reported by Martín del Campo. It has 142 ventrals, 33 caudals, dorsals in 21 rows, 9-10 supralabials.

I have examined six specimens, all from Guatemala and Costa Rica.

Trimeresurus barbouri (Dunn).

Lachesis barbouri Dunn, *Proc. Biol. Soc. Wash.*, vol. 32, 1919, pp. 213-214 (Omitlilte, Guerrero).

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Agkistrodon browni Shreve, *Copeia*, 1938, p. 9 (Omitlilte, Guerrero).

This diminutive species is known only from three specimens collected at the type locality, of which I have examined one, the type of *barbouri* (U. S. N. M. 46347).

I cannot see that *browni* is different from *barbouri*. The apparent difference in ventral counts of the types (134, *browni*; 154, *barbouri*) is not real, since the *browni* type is a male, and the *barbouri* type a female, the ventrals of which should have been written 145 (I count 144 to 147, according to the number of smaller anterior scales counted as ventrals). The only remaining apparent difference is in the presence of larger head shields, with distinct prefrontals, frontal and parietal in *browni*. I believe the size of the dorsal head scales varies in this species, as it certainly does in *godmani*, to which the Omitlilte species is related. In six specimens of *godmani* several intermediate stages between more or less uniform, small scales and the presence of distinct frontals and parietals are shown. Since the type of *barbouri* has small but distinguishable prefrontals, and since the presence or absence (and size when present) of the frontal and parietals is variable in a closely related species, I believe there is no reasonable doubt that *browni* and *barbouri* are synonymous.

Trimeresurus bicolor (Bocourt).

Bothrops bicolor Bocourt, *Ann. Sci. Nat.*, ser. 5, vol. 10, 1868, p. 201 (San Agustín, Guatemala).

The only specimen examined is one in the National Museum (No. 46511), from Chicharras, Chiapas. It is a small female with 168 ventrals, 48+ caudals (tail tip missing), 10-11 supralabials, 12-12 infralabials, and 10 scales between the narrow supraoculars; second supralabial enters pit on one side, does not on other.

The species is closely related to *lateralis* Peters (1852), of Costa Rica, which has larger head scales (7 or 8 between supraoculars), a yellow line along outer row of scales and sometimes short black-and-yellow cross-bars (*vide* Boulenger).

ger). There is no difference between the two in number of labials (the single specimen examined of *lateralis* has ten), nor in exclusion of the second supralabial from the pit (see above).

Trimeresurus nigroviridis aurifer (Salvin).

Thamnocenchris aurifer Salvin, *Proc. Zool. Soc. London*, 1860, p. 459, pl. 32, fig. 1 (Cobán, Guatemala).

Bothrops nigroviridis aurifera Barbour and Loveridge, *Bull. Antiv. Inst.*, vol. 3, 1929, pp. 1-3; Martín del Campo, *Anal. Inst. Biol. Mex.*, vol. 9, 1938, pp. 228-229, fig. 1.

This species was first reported from Mexico by Martín del Campo, who cites a specimen from Santa Rosa, near Comitán, Chiapas. It has 159 ventrals, 44 caudals (lower than other *aurifer* reported in the literature), 9-10 supralabials, scales in 19 rows. I have seen no specimens.

Trimeresurus atrox (Linnaeus).

Coluber atrox Linnaeus, *Syst. Nat.*, 1758, p. 22 (Asia, erroneous).

Trimeresurus atrox Schmidt and Andrews, *Zool. Ser. Field Mus. Nat. Hist.*, vol. 20, 1936, p. 182.

Specimens of this species have been taken as far north as Valles, San Luis Potosí (Martín del Campo, *loc. cit.*, records it from Tamaulipas); it occurs throughout the Atlantic coastal region south of this point, and also along the Pacific coast in southeastern Chiapas. Boulenger records it from farther north on the Pacific coast, from Atoyac, Guerrero (*Cat. Snakes*, vol. 3, 1896, p. 536).

The nineteen Mexican specimens examined differ from South American specimens in the character of the carinae of the median scales, as pointed out by Boulenger (*op. cit.*, pp. 535-539). I can find no other difference.

Trimeresurus nummifer nummifer (Rüppell).

Atropos nummifer Rüppell, *Verz. Senck. Mus., Amph.*, 1845, p. 21 (Mexico).

Trimeresurus nummifer nummifer Dunn, *Proc. Biol. Soc. Wash.*, vol. 52, 1939, pp. 165-166.

Specimens are known from central Veracruz along Atlantic slopes into Central America, and on Pacific slopes in southeastern Chiapas. The species is rarer than *atrox*, and is apparently confined to hilly regions, while *atrox* is more widespread and ranges from hills to plains. I have examined thirteen Mexican specimens.

Trimeresurus nasutus (Bocourt).

Bothrops nasutus Bocourt, *Ann. Sci. Nat.*, ser. 5, vol. 10, 1868, p. 202 (Panzos, Río Polochic, Guatemala).

One specimen (U. S. N. M. 110415) is known from the Mexico-Guatemala border, bearing the locality data Piedras Negras, Guatemala. Dr.

E. R. Dunn tells me that there is one in the Museum of the Philadelphia Academy of Natural Sciences, labelled Veracruz (No. 4873, collected by Rev. H. F. Heyde). This is quite different from *dunni* and *yucatanicus*, all of which are related; *nasutus* has a much higher rostral and a different arrangement of the preocular and subocular scales. Two specimens have been examined, the other from Panamá.

Trimeresurus dunni Hartweg & Oliver.

Trimeresurus dunni Hartweg & Oliver, *Occ. Papers Mus. Zool. Univ. Mich.*, no. 390, 1938, pp. 6-7, pl. 1 (Tehuantepec, Oaxaca).

Known from the semi-arid Pacific slopes of the Isthmus of Tehuantepec (seventeen specimens examined).

The definition of this species by Hartweg & Oliver has greatly clarified the situation with respect to *lansbergii*, with which the Tehuantepec as well as Yucatán specimens were previously associated. Prior to their action, three separate populations of *lansbergii* were apparent: one in northern South America and in Panamá; one in Oaxaca; and the third in Yucatán. Between Mexico and Panamá no specimens related to *lansbergii* are known. All of this group from that intermediate area are referable either to *ophryomegas* or to *nasutus* (*c. f.* Amaral, *Bull. Antiv. Inst.*, vol. 3, 1929, pp. 19-27).¹

The isolated group in Yucatán is not the same as *dunni*, nor can it be referred to typical *lansbergii* of South America. I propose the name

Trimeresurus yucatanicus sp. nov.

Holotype. U. S. National Museum 46571, female, from Chichen Itza, Yucatán, collected by Nelson & Goldman, February, 1901. *Paratypes*. Field Museum of Natural History No. 504, Yucatán, and No. 20621, Chichen Itza, Yucatán.

Diagnosis. Snout turned up in front; rostral no more than one and one-half times as high as wide; scale rows 21 posteriorly; two lower preoculars subequal, both excluded from orbit; two large scutes on top of head bordering internasals and canthals, nearly meeting medially; loreal square; caudals 32 to 41 in females; bands on body single.

Description of Holotype. Rostral very high, its length (2.6 mm.) somewhat greater than greatest width (2.2 mm.), twice width of upper part (1.3 mm.); internasals elongate, elevated, in contact medially; one canthal; preocular encroaching on dorsal surface between canthal and supraocular; five or six scales between supraoculars; dorsal head scales keeled; a large scale, as large as canthal, bordering internasal medially, in contact with canthal, separated from its mate by one scale; ten supralabials; first labial in contact with anterior section of nasal, separated from posterior section by a very small scale and a small, wedge-

¹ *Trimeresurus lansbergii annectens* Schmidt is certainly referable to *ophryomegas*, of which it may be a subspecies.

shaped protrusion from anterior section; scale between second labial and posterior section of nasal quite small; one row of small scales between labials and border of pit; two tiny scales between nasal and border of pit; loreal moderately large, nearly square; one moderately large scale between lower preocular and third labial; one row of scales between subocular and labials; subocular single, very elongate; one very large upper preocular, about twice as large as loreal, somewhat smaller than canthal; two lower preoculars, both separated from labial border, both small; median preocular partially fused with an elongate scale bordering edge of pit; edge of supraocular thin; edge of canthal somewhat raised, rather sharp anteriorly; edge of preocular not keeled, rounded. Eleven or twelve infralabials; first infralabials in contact with each other behind mental; three labials in contact with chinshields; one large anterior pair of chinshields, about as long as combined width; this followed by two small pairs of scales.

Dorsals in 27-27-21 rows; 148 ventrals; 32 caudals, entire; anal entire. Total length 254 mm.; tail 26 mm.

Specimen badly faded. Ground color light gray, stippled; seventeen somewhat staggered, darker cross bands, split on middorsal line; blotches covering about six scale lengths, separated by light areas covering about four scale lengths; anterior and posterior edges of cross bands black, narrowly light-edged; some blotches faintly divided by a very slightly lighter, transverse area; the dark borders terminating about four scale rows lateral to vertebral row; blotches faintly interrupted at this point, below which are two rounded spots of same color as blotches, separated from each other, and more or less fused with the blotches; belly heavily stippled; a few light marks in labial region.

Remarks. So far as now known, the only specimens of *Trimeresurus* from areas north of Panamá having a rostral similar to that of *lansbergii* are those from the Tehuantepec area which have been described by Hartweg & Oliver as *dunni*, and the present three specimens from Yucatán. The latter three are not the same as *dunni*, since the bands are not paired; the scale rows usually more numerous in front of anus (21 at anus in one out of 27 *dunni*, 21 in all three *yucatanicus*); two lower preoculars small, subequal, excluded from orbit (middle larger, entering orbit in *dunni*).

From *lansbergii* itself the present species apparently differs in having 21 scale rows posteriorly, usually more numerous subcaudals (28 to 33 in females, 31 to 36 in males of *lansbergii*; 32 to 41 in females of *yucatanicus*); two relatively large scutes bordering internasals and canthals, nearly meeting each other medially (no such scales in *lansbergii*, apparently); loreal square (usually narrow, about twice as long as broad in *lansbergii*).

In 1859 Cope described a form called *brachystoma* (*Proc. Acad. Nat. Sci. Phila.*, 1859, p. 339).

The series on which this name was based is now in the collections of the Philadelphia Academy of Natural Sciences, and consists of four specimens (of which No. 7043 is the type), all collected by Mr. Cuming at unknown localities. All four have 19 scale rows posteriorly, elongate loreals and bands single, and accordingly agree with the characters of *lansbergii*. They probably were secured in South America, as Dr. Dunn states that numerous other specimens collected by Cuming are in the Academy collections, all apparently from South America.

Trimeresurus undulatus (Jan).

Trigonocephalus (Atropos) undulatus Jan, *Rev. Mag. Zool.*, 1859, p. 157 (Mexico).

Specimens in the National Museum are from Orizaba, Veracruz (No. 6319); Omilteme, Guerrero (Nos. 46345-6, 46348); and Oaxaca, Oaxaca (No. 46466). The species has also been reported from the state of Hidalgo (Martín del Campo, *op. cit.*, p. 14).

Trimeresurus melanurus Müller.

Trimeresurus melanurus Müller, *Mitt. Zool. Mus. Berlin*, vol. 11, pt. 1, 1923, pp. 92-93 (Mexico).

Trimeresurus garciai Smith, *Proc. Biol. Soc. Wash.*, vol. 53, 1940, pp. 62-64, fig. 2 (Cacaloapam, Puebla).

This species is known only from the desert region about Tehuacán, Puebla. Its divided caudals and the horn-like supraocular distinguish it from all other species in Mexico. Three specimens have been examined.

KEY TO MEXICAN TRIMERESURUS

1. Supraocular produced as a soft, horn-like scute 2
Supraocular flat 3
2. Subcaudals entire *melanurus*
Subcaudals divided *undulatus*
3. Snout produced, turned up 4
Snout not noticeably turned up 6
4. Rostral about twice as high as wide *nasutus*
Rostral no more than one and one-half times as high as wide 5
5. Bands on body distinctly paired; two lower preoculars small, subequal, excluded from border of orbit; scale rows 21 in front of anus
yucatanicus
Bands on body paired, each half well defined and usually separated medially from its mate; middle preocular considerably larger than lower, broadly in contact with border of orbit; scale rows usually 19 in front of anus
dunni
6. Subcaudals double *atrox*
Subcaudals single 7
7. Scales in 23 rows or more; size large
nummifer nummifer
Scales in 21 rows or less; size smaller 8
8. Width of a supraocular about half distance between supraoculars; subcaudals 22 to 34; brown; terrestrial 9
Width of a supraocular one third distance between supraoculars, or less; subcaudals 44 to 67; green; arboreal 10

- 9. Scales in 21 rows; upper preocular large, forming part of canthal ridge; loreal small, excluded from canthal ridge, not in contact with supraocular *godmani*
- 10. Head scales smooth; scales in 19 rows forming part of canthal ridge, in contact with supraocular *barbouri*
- Head scales keeled; scales in 21 rows . . . *nigroviridis aurifer*
- Head scales keeled; scales in 21 rows . . . *bicolor*